

January 23, 2006

Ms. Angela Bounds
814 Airway Avenue
Sutherlin, Oregon 97479

Dear Ms. Bounds:

As part of Guidance Memorandum and Policy (GMP) #114 issued October 19, 2001, Orenco Systems, Inc. (OSI) voluntarily entered into a provisional system protocol designed to collect data on the AdvanTex™ system to determine if the State Health Commissioner could grant general approval for that system pursuant to 12 VAC 5-610-448 of the *Sewage Handling and Disposal Regulations (Regulations)*. This letter is to advise you that the Virginia Department of Health (VDH) is rendering a decision on the provisional protocol originally established for the AdvanTex™ system for systems installed in Texture Group II, III, and IV soils. Data collection is substantially complete on these systems and OSI understands and has agreed to collect the remaining data. No data has been collected on systems installed in Texture Group I soils, and as a result, systems installed in accordance with GMP #114 in Texture Group I soils will remain Provisionally Approved.

VDH is rendering a decision at this time because we believe the results received to date show consistency and stability of the process over more than 18 months (the originally envisioned experimental period). Also, VDH is prompted to act at this time because of the potential benefits to Virginians of having an additional choice in wastewater systems that expand the site characteristics where wastewater can be safely disposed.

The full-scale experimental demonstration project can be defined in terms of three objectives. These objectives were to test:

1. Modified sizing criteria resulting in a smaller absorption area than a system receiving septic tank effluent. The new criteria were based upon improved effluent quality and included use of trenches, beds (or pad area), and a combination of the two.

2. Installation depths less than 18 inches and as shallow as at-grade.
3. Revised stand-off distances to water tables ranging from six inches to 12 inches as specified in GMP #114.

A total of 220 systems were installed during this demonstration period and 18 systems were monitored for their performance (six each in Texture Groups II, III, and IV). Performance monitoring was conducted under the auspices of Mark Gross, Ph.D., P.E., and included monthly testing for BOD₅, total suspended solids (TSS), fecal coliform removal efficiency of the modules, nitrogen dynamics through the system, fecal coliform 12 inches beneath the absorption pad, phosphorus, chlorides, temperature and pH. The mean BOD₅ for effluent discharged to the absorption field was 6.5 mg/l. The mean value for TSS discharged to the absorption field was 8.5 mg/l. Both values were within the 10 mg/l standard established by the protocol.

At all sites, regardless of soil type, most of the *E. coli* in the effluent were removed by filtration through the soil. None of the *E. coli* numbers in lysimeter samples at any site exceeded an arithmetic mean of 10 mpn/100 ml. Because the geometric mean for any data set is always lower than the arithmetic mean, the AdvanTex™ units met the GMP#114 geometric mean criterion for *E. coli* removal. A review of original data revealed that no single lysimeter sample at any site contained *E. coli* in excess of 200 mpn/100 ml. Thus, the AdvanTex™ units also met the GMP #114 single-sample maximum criterion for *E. coli* removal.

Finally, based on the experience with the operational and maintenance requirements of the AdvanTex™ system encountered during this study, I believe it is appropriate that applications for AdvanTex™ systems continue to be processed in the manner described for Type II systems; under this process, formal engineering plans are not routinely required for residential applications. The system is treated as a proprietary pre-engineered design when used within the scope of GMP #114. I believe this is in keeping with the spirit of both the *Regulations* and the concept of “pre-engineered septic system[s]” mentioned in a revision to §32.1-163.5 D of the *Code of Virginia*. This means that formal engineering plans and specifications are not required unless the size or complexity of the system warrants them.

The data collected under this protocol also allow two additional decisions regarding the AdvanTex™ system. Based on the results received, the AdvanTex™ system is granted general approval for 10-10 (BOD₅ and TSS) discharge under the *Alternative Discharging Sewage Treatment Regulations for Individual Single Family Dwellings (Discharge Regulations)* 12 VAC 5-640 et seq. Systems used for this application must comply with the requirements of

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the *Discharging Regulations*, including, but not limited to, the requirement for disinfection. The system may also be used as a pretreatment device under GMP #97, if used in accordance with the sizing criteria in the *Regulations* and in compliance with the requirements of GMP #97. These approvals were not requested by OSI and are incidental to the experimental protocol.

In closing, I would like to thank you for the cooperation, effort, and considerable resources that OSI has contributed to this joint public-private sector effort. I believe the onsite sewage industry in Virginia has benefited from this cooperative work and that, as a result, we can both better serve the citizens of the Commonwealth.

Sincerely,

Robert B. Stroube, M.D., M.P.H.
State Health Commissioner

c: Environmental Health Managers
District Health Directors